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IS SMOG DEVELOPING IN THE CENTRAL VALLEY?*

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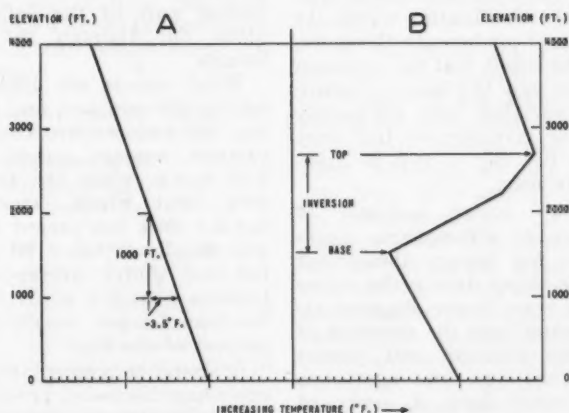
Are there signs of a forthcoming air pollution problem in the Central Valley? The asking of this question implies that there is a possibility of community-wide air pollution in the Central Valley. The kind of air pollution called smog that has given us so much trouble in California comes from many sources of pollutants. These pollutants are mixed in the atmosphere, may undergo chemical reactions, and are carried throughout the community, so that it is seldom possible to relate accurately the sources of the pollutants to their effects.

Smog has been experienced in the State's three largest metropolitan regions—the Los Angeles area, the San Francisco area, and the San Diego area. Its occurrence in all three regions shows that it is not unique to any one portion of California and that the air supply of our communities is limited and can be seriously impaired by human activity.

Meteorology has been shown to be an important factor in the development of air pollution. Light winds and low temperature inversions limit the amount of air available to dilute the wastes discharged into the atmosphere and are conducive to air pollution. Although meteorological factors in the Central Valley may differ in several ways from those of the coastal region

Figure 1

- (A) AVERAGE TEMPERATURE VARIATION IN LOWER FEW MILES OF ATMOSPHERE
(B) EXAMPLE OF A TEMPERATURE INVERSION



of the State where air pollution now exists, we have sufficient data to indicate light winds and low inversion are frequently found in the valley. In fact, it is very likely that during some seasons of the year conditions are even more favorable for smog in the valley than along the coast.

Emissions to the atmosphere may be dispersed in two directions, vertically and horizontally. Usually absence of both types of dispersion is necessary to cause excessive air pollution. If the atmosphere is stable and the winds are light, dispersion is retarded.

The atmosphere is considered stable if it tends to return an air "parcel"

to its original level after a slight vertical displacement. When the atmosphere is unstable, the "parcel" will continue to move vertically and emissions to the atmosphere will be more readily mixed and carried aloft.

In the lower few miles of the atmosphere, temperature decreases at an average rate of about 3.5 degrees F. per 1,000 feet rise in elevation (Fig. 1), but frequently in the first few thousand feet, air temperature increases with elevation and the usual condition is reversed. This is called a temperature inversion. The point where air temperature begins to increase is the inversion "base," and

* Based on presentations by Mr. Maga and Mr. Holzworth at the Valley Air Pollution Conference, January 31, 1958, Stockton, California.

† Mr. Holzworth is on assignment from the U. S. Weather Bureau through the U. S. Public Health Service.

the inversion "top" is the point where this temperature increase stops. Inversions represent very stable conditions of the atmosphere. Ascending currents are retarded near the inversion base, so the vertical mixing of pollutants is confined to the air beneath.

Vertical temperature observations were taken twice daily at Merced from 1954-56. Vertical temperature observations from other sites in the Central Valley are sparse, but the data from Merced should indicate inversion characteristics general throughout much of the valley. When all inversions at 3,000 feet or below were included, inversion was present more than 85 percent of the time at 7 a.m. and more than 70 percent of the time at 7 p.m. Inversions were least frequent in the spring and most frequent in the fall.

During the early morning and evening, inversions can be expected to be much more frequent than during midday. Daytime solar heating warms the cool stratum of air beneath the inversion with the result that the inversion is weakened and the base is raised. Sufficient warming will completely eliminate the inversion, so that very often on a hot day it will be dissipated before noon.

"Tule fog" is an indicator of stable, stagnant atmospheric conditions. This fog occurs throughout much of the valley during the colder part of the year. Under stagnant atmospheric conditions the duration of the fog can increase and persist throughout the day, and may even last for several days. A study of weather observations at the Stockton airport over a five-year period showed a number of long unbroken periods of very low visibility and/or low clouds. Several of these occurrences lasted more than 100 consecutive hours and one lasted almost 200 hours. These stagnant conditions are not frequent, but periods of two days or more will probably occur at least five times per year during the colder seasons. While such conclusions may approximate general conditions over much of the valley, they would naturally differ more or less in other specific locations.

Winds establish the directions in which pollutants are carried and they determine the amount of air that is

available for diluting emissions horizontally.

Prevailing winds in the Central Valley generally blow from either northwesterly or southeasterly directions. In summer much of the air moving into the Central Valley floor comes inland through the Golden Gate. This stream of air largely follows the water surface northeastward and passes through Carquinez Straits as a strong westerly wind. Over the nearby delta this air stream splits, as indicated by prevailing directions from the southwest at Fairfield and northwest at Stockton. The upper branch moves up the Sacramento Valley from a southerly direction, and the lower branch moves up the San Joaquin as a northwesterly wind.

During winter the air flow pattern is reversed. In January, prevailing wind directions over much of the Sacramento Valley are northwesterly; over the San Joaquin Valley they are southeasterly. These converge over the central part of the valley and air blows out through the Carquinez Straits.

Wind speeds are highest during spring and summer, and lowest during fall and winter. In spring and summer, average speeds are mostly 6-10 m.p.h. while the frequency of very light winds (speeds of 0-3 m.p.h.) does not exceed 23 percent, and usually is below 20 percent. In fall and winter, average speeds are between 5 and 9 m.p.h., but speeds less than 4 m.p.h. usually occur 20-40 percent of the time.

It should be pointed out that in the preceding discussion prevailing directions and average speeds have been utilized to describe the general air flow. In drawing more specific conclusions, wind data should be studied in greater detail.

Available information indicates that in a general way valley weather is conducive to air pollution. Frequent low inversions and light winds during fall and winter suggest that air pollution will be most likely in these seasons. However, the nature of the weather is such that conditions favorable to smog could occur in any season.

The more readily recognized effects of smog include eye irritation, damage to vegetation and reduced visibility. Unfortunately these effects are not always good indicators of the

early development of a problem. The experience of eye irritation by large numbers of people would probably be a sign of a serious smog episode rather than an early sign of a possible problem. Visibility can be reduced by wind-blown dusts, natural haze, and several agricultural operations as well as by smog. Some types of vegetation suffer very characteristic damage from smog at levels below which widespread discomfort is experienced by people. Vegetation damage, therefore, can often be used as an index for fairly low levels of smog. It, however, is not an accurate measure of the concentration and daily variation of the pollutants.

The most practical and widely used method of determining the nature and extent of air pollution is the measurement by suitable means of the concentration of pollutants in the atmosphere. A good air measurement program will provide data on what contaminants are present, their concentrations, and how the concentrations vary over both short and long periods of time.

Such information is needed to answer questions on the air quality in a community. If we visualize a curve showing increased levels of air pollution plotted against the growth of an area, we can see that it is important for the area to know where it finds itself on this curve.

In order to obtain data on air quality in the Central Valley, the State Department of Public Health early last year encouraged local governmental agencies in the valley to undertake a program of measurements at several of the larger communities. It was proposed that this air monitoring network include the determination of oxidants and the operation of a sampler that indicates the extent of solid material in the air. Oxidants are found in the atmosphere of the three large metropolitan regions of the State during smog episodes and are the best single chemical measure of smog levels now available. The amount of solid matter in the air is related both to metropolitan air pollution and to dusts and smokes generated by agricultural activities.

A co-operative network has now been established that includes Sacramento, Stockton, Modesto, Merced, Fresno and Bakersfield. Oxidants are determined daily by the phenolphtha-

lein method; a smoke sampler—used to indicate solid material—is operated throughout the day. Samples at these locations are being collected by the local health departments. The department's Bureau of Air Sanitation is co-ordinating the sampling program, compiling meteorological information, and assisting in the evaluation of the data.

The measurement network is the minimum possible program. It consists of a small number of stations over a very large area, and in its present form cannot answer all the questions about air pollution in the valley. The major purpose of the network is to obtain data that will give us some idea about levels of oxidants, frequency of occurrence of high oxidant values, and information that will be useful in planning future air pollution activities in the valley. Later in 1958 the network will be supplemented by special sampling by the Bureau of Air Sanitation and by an automatic recorder for oxidants and nitrogen dioxide which the bureau will locate in the valley.

Since the air monitoring network has only been in operation for a short time, it is not possible to draw many conclusions from the data obtained. However, in a special study, the Bureau of Air Sanitation was able to collect frequent oxidant samples throughout the day at several valley communities over a period of approximately 14 days. Much of the information on air quality in the valley used in this discussion was obtained during this study.

The results of these oxidant samples, together with observations on vegetation damage by Professor John Middleton and his staff from the University of California at Riverside, and reports and investigations of special instances of air pollution, have been used to try to answer the question—"Are there signs of a forthcoming general air pollution problem in the valley?"

Reports have been received over the past few years that air pollution, as indicated by reduced visibility, has been noted in some of the valley communities. Late in November, 1955, air pollution was reported at several places; Fresno seemed to be the area most seriously affected. This episode did not appear to be the result of wind-blown dust or agricultural burn-

ing. The air pollution in November, 1955, was thought by some people to have spread from the Bay area. However, a review of meteorological conditions indicated that the wind flow patterns for that period were not favorable for such transport. In fact, if air pollution had traveled during that period it more likely would have been carried into the Bay area from the valley. It was apparent then that the episodes reported in November 1955 were the result of local sources of pollutants.

Professor John Middleton and his staff have found evidence of vegetation damage due to smog in Kern and Sacramento Counties in 1956 and in most of the counties in the San Joaquin Valley in 1957. While this damage has not been extensive, it is an indication of at least low levels of smog in the valley.

Oxidant data from the monitoring network and sampling done by the Bureau of Air Sanitation have indicated levels higher than had been expected. Table I shows the maximum value at each city where there was some sampling.

TABLE I. MAXIMUM OXIDANT VALUES IN CENTRAL VALLEY COMMUNITIES

July-September, 1957		
Location	Maximum Oxidant ¹ ppm	Date
Sacramento	0.28	September 6
Stockton	0.19	August 27
Merced	0.22	July 2
Fresno	0.16	September 10, 11, 12
Bakersfield	0.29	September 7
	0.27	September 6

¹ By the phenolphthalein method and expressed as parts per million (ppm) of hydrogen peroxide (H₂O₂).

It is important to remember that these values were not the highest oxidants that existed but rather the highest found, since samples were not collected each day at all sites. One cannot compare the values at each location and conclude, for example, that Bakersfield has more air pollution than Stockton. During September, when high oxidants were found at Bakersfield and Sacramento, no samples were being collected at Stockton, Merced and Fresno.

What is the significance of the values shown in Table I? These levels are considerably above oxidant levels found in regions of the State where the air is not subject to urban pollution. Studies by the Bureau of Air Sanitation at remote areas indicate

that oxidants usually range from 0.01-0.10 ppm, with most of the values from 0.03-0.05 ppm. A comparison of the maximum oxidants, as measured by the phenolphthalein method at Bakersfield and Sacramento with those at San Diego, Berkeley, San Francisco and San Jose for the period from July to September, 1957, reveal that the levels in the two valley cities were only slightly lower than at the Bay area and San Diego stations. The oxidants in the valley, however, were considerably lower than maximum values at Pasadena for the period, and the maximum for the Bay area and Pasadena over the past few years (0.63 and 1.2 respectively).

Experience in the three large metropolitan regions of California has been that oxidants of 0.25-0.30 ppm, as determined by the phenolphthalein method, represent threshold levels for eye irritation and vegetation damage. The identification of some smog damage to vegetation in the valley supports the experience in other parts of the State.

On September 6th and 7th, high oxidants were found in Bakersfield by the Bureau of Air Sanitation and on September 6th in Sacramento by the Sacramento County Health Department. Although no data were available from other stations for this period, it appears from the readings at these two widely separated locations that meteorological conditions which favored the accumulation of pollutants existed over wide areas of the valley. The average wind at Sacramento on September 6th was the lowest of any day during that month. Very low winds were also recorded on September 6th and 7th in Bakersfield. The low winds together with their prevailing direction indicate that the oxidants measured resulted from local sources of air pollutants and not from polluted air from other regions.

Conclusions

There is little doubt that air pollution already is present in the valley. We don't know how serious it is or how frequently episodes occur. The oxidant values, however, strongly hint that on some days pollutants reach threshold levels for slight eye irritation and vegetation damage.

The finding of high oxidants in September is consistent with meteorological information on seasonal varia-

tion of winds and temperature inversions. September is also a month when smog is very likely to occur in other parts of the State.

Low inversions and light winds occur frequently in the Central Valley. Meteorological conditions, therefore, are conducive to the build-up of pollutants in the atmosphere. As centers of population grow in the valley, the ability of the atmosphere to effectively disperse contaminants will be increasingly taxed.

The data now available certainly do not justify a conclusion that the valley is about to suffer serious air pollution this year or in the near future. Nor is it correct to conclude from the data that the same high levels of air pollution now occurring in other areas of California will some day be experienced in the valley. For this to happen it would be necessary for pollutant loadings on the atmosphere of valley communities to be similar to loadings where the serious problems exist.

However, the findings of last year clearly indicate the need for expanding air pollution activity in the valley. It is important that more complete information be obtained on the nature and amount of pollutants in the atmosphere since a sound air pollution program for the valley must be based on a good understanding of the problem.

Dr. Nevitt to Make Dental Health Survey of Middle East for W. H. O.

A dental health survey of the Middle East will be undertaken by Dr. George A. Nevitt, U. S. Public Health Service dental officer, on a one-year assignment for the World Health Organization, W. H. O. announced recently. This will be the first comprehensive study to be made by W. H. O. in that area of the world.

Dr. Nevitt has been dental consultant in the San Francisco Regional Office of the U. S. P. H. S. since 1953. For the survey, he will be stationed in W. H. O. regional headquarters in Alexandria, Egypt. The countries included in the study are Egypt, Ethiopia, Iran, Iraq, Israel, Jordan, Lebanon, Libya, Pakistan, Saudi Arabia, Sudan, Syria, Tunisia and Yemen.

SPECIAL CENSUS RELEASES

Special Census of California cities, **Series P-28 Los Angeles County:** Claremont (1190), Covina (1205), West Covina (1204); **Riverside County:** Palm Springs (1196); **San Bernardino County:** Montclair (1189).

Provisional Estimate of the Population of the United States, January 1, 1950, to April 1, 1958. **Current Population Reports, Population Estimates**, May 14, 1958, **Series P-25**, Number 176.

Copies of these releases may be obtained from: Library, Bureau of Foreign and Domestic Commerce, United States Department of Commerce at 419 Customs Building, 555 Battery Street, San Francisco, California, or at Room 450, 1031 South Broadway, Los Angeles, California.

In ordering, specify series and number as shown in parenthesis. These numbers are *not* population figures.

Ultraviolet Spectrophotometry Proves Valuable Test

The rapidity with which ultraviolet recording spectrophotometry can solve certain types of problems was clearly demonstrated recently in the State Health Department's Food and Drug Laboratory. The laboratory was requested to determine if certain vials of a parenteral solution of the drug Meperidine had been tampered with by unauthorized personnel. An ultraviolet absorption curve readily indicated that the content of the vials being tested did not have the normal characteristics of the product. Further solvent extraction procedures with accompanying ultraviolet spectrophotometry elucidated that some of the active material had been removed and that the samples being tested had been diluted with distilled water containing benzyl alcohol. Conventional chemical techniques would either not have permitted this assay or would have required such an extended period as to be totally impractical.

Public Health Positions

Los Angeles City

Public Health Educator: Salary range, \$489 to \$608. Open competitive examination will be given daily, Monday through Friday, excluding legal holidays, in Room 5, Los Angeles City Hall, until eligibility lists are established. Filing will close the last Thursday of each month and reopen the following Friday. Application and \$1 filing fee will be received by the Civil Service Department, Room 5, Los Angeles City Hall, until further notice.

Completion of one year of graduate study in public health education in a recognized school of public health and one year of professional public health experience or full-time teaching experience at the high school or college level are required. Experience in professional public health education may be substituted on a year for year basis for the required education. A valid California motor vehicle operator's license is required prior to appointment. Appointee will be required to furnish his own automobile, properly insured for use in city service. Mileage will be paid on the basis of miles driven per month.

Pasadena City

Sanitarian: Salary range, \$423 to \$511. Requires California certification, driver's license and U. S. citizenship. Pasadena residence not required. Apply to Personnel Department, City Hall, Pasadena, California.

San Bernardino County

Assistant Director of Public Health: Salary range, \$909 to \$1,105. M.D. and M.P.H. degrees required, plus one year rotating hospital internship and two years in a public health department, one of which was in an administrative capacity.

Public Health Medical Officer: Salary range, \$866 to \$1,052. M.D. required and one year rotating hospital internship. Must have or be eligible for license to practice medicine in California.

Microbiologist: Salary range, \$378 to \$460. Must have or be eligible for California State Microbiologist's Certificate.

For further information write to the County Personnel Department, 236 Third Street, San Bernardino, California.

San Mateo County

Medical Officer: Salary range, \$906 to \$1,133. To serve as a medical assistant to the Superintendent of Field Service with primary responsibility in maternal and child health programs. Requires eligibility for or license to practice medicine in California and either an M.P.H. degree or two or more years hospital residency training in public health or related fields. Write Civil Service Commission, County of San Mateo, Courthouse, Redwood City, California.

No single therapeutic agent nor combination of agents has been demonstrated to be specific against tetanus. Therefore, control of the disease must come by way of prevention, not cure.—Creek et al., *Annals of Surgery*, September, 1957.

Tularemia Hazard From Mice Investigated

Early this spring a great increase in the population of field mice was observed in Northern California and in Oregon. Evidence of tularemia infection in these mice obtained during the time of the peak population necessitated an evaluation by the department of the significance for public health (see the April 15th issue).

Investigation has shown that the surge in field mice population has passed its peak and that the decline has been such that practically "normal" levels have been or soon will be reached.

The probability that unprotected waters contaminated with tularemia organisms from infected mice could be a public health hazard has been receiving a great deal of study by the department staff and others interested in tularemia. It is agreed that there is a potential hazard, but that the extent is not sufficient to justify any extensive environmental action.

Infected mice are considered to present very little danger of direct transmission of tularemia to man, but do present a hazard of indirect transmission to man by infecting other animals, especially wild rabbits, and by infecting ticks, buildings, and unprotected waters.

During the past five years, 42 human cases of tularemia have been reported to this department. In studying the suspected sources of infection for these 42 cases, it is found that 32 have been attributed to wild rabbits, four to biting insects, one to a raccoon, one to a chipmunk, two to squirrels, and in two cases the source was unknown. This supports the belief of workers in the field of tularemia that wild rabbits represent the greatest hazard to man. This does not necessarily mean that wild rabbits are more commonly infected with tularemia than other wild animals, but that people come in contact more often with the infection in wild rabbits because of the widespread practice of hunting and eating wild rabbits with the attendant hazard of skinning of the animals.

The reported human cases have decreased steadily from 16 in 1953 to two in 1957. Whether this represents a real decrease or whether it represents a lack of reporting is not certain.



SAN JOSE CITY HEALTH DEPARTMENT

This is San Jose's new health center, part of the city's beautiful, modern Civic Center at First and Mission Streets on the site of the adobe building that was San Jose's first seat of municipal government 161 years ago.

The recent move of the health department into the new building houses the staff under one roof for the first time in 15 years. The T-shaped, one-story, concrete structure contains offices, clinic rooms, laboratory facilities and a classroom. The classroom was specifically designed for food handlers' classes and contains all the necessary restaurant equipment needed for lecture and demonstration purposes. Half the cost of the health center was financed by state and federal Hill-Burton funds. The X-ray unit was donated by the Santa Clara County Tuberculosis Association.

There is good reason to believe that it is lack of reporting, because there has been no known decrease in the reservoir of infection, nor has there been any known decrease in the hunting and eating of wild rabbits, nor in exposures to other wildlife and biting insects. Since the antibiotics now provide a more effective therapy for human cases than was provided by drugs in the past, there has been decreasing motivation for the practicing physician to report cases or to submit blood specimens from the suspected patient for laboratory study by health departments.

The extent of the tularemia hazard to man from mice cannot be accurately measured at this time, but it does not appear to justify widespread preventive action in the environment. However, it does justify an increased surveillance and close observation of the animal and human populations involved.

Pottenger Sanatorium to Become Chronic Disease Facility

One of the oldest and most famous tuberculosis sanatoriums in California was discontinued when the Pottenger Sanatorium of Monrovia was recently sold to a syndicate which plans to remodel and use it as a chronic disease facility. Dr. Francis M. Pottenger, now 87, long a member of the California State Board of Public Health and a consultant to the State Health Department's Bureau of Tuberculosis, continues his activity as a medical consultant and now is the dean of all tuberculosis physicians and tuberculosis association workers, not only in California but in the United States.

"The turtle, to make progress, must stick out its neck."—Benjamin Franklin.

Recent Additions to Film Library

ARE YOU POSITIVE? 13½ minutes. Color. 1957

This film presents some vital facts about tuberculosis. It emphasizes the fact that misconceptions about health, and tuberculosis in particular, can cause considerable harm, due to a false sense of security which develops, causing the individual to refrain from taking proper and adequate preventive measures. This film should be useful in promoting discussion regarding erroneous attitudes toward all aspects of health and medical care and what may be ways to change people's beliefs and behavior in regard to their own health. National Tuberculosis Association. For high school, college, and adults. (Tuberculosis; School Health.)

CHANGE AT HAVERSTRAW 28 minutes. 1957

Describes the role and function of various personnel, and the services needed in the total program for aiding the physically handicapped. Photographed at the New York State Rehabilitation Hospital at West Haverstraw, New York. New York State Department of Health. For high school, college, and adults. (Rehabilitation; Hospitals.)

DEEP WELL, THE 36 minutes. 1956

A documentary film of current agency practices in dealing with children who need foster care. It shows an agency's role in helping a family broken by a father's illness come together after it seemed destined to fall apart. The film was shot on location at the Pleasantville Cottage School and shows the wide range of casework and psychiatric services which were provided the aggressive 11-year-old boy, and how sound casework counseling gives strength and insight to his distraught mother, helping her cope with the situation. The Jewish Child Care Association of New York and the Child Welfare League of America. Suitable for child care agencies, community groups and clubs, and professional persons, agencies and institutions. (Child Care and Development; Mental Health; Counseling.)

HOW TO HAVE AN ACCIDENT IN THE HOME Color. 8 minutes. 1957

Animation featuring Donald Duck and J. J. Fate shows how 5,000,000 accidents occur in the home each year because people do not exercise average intelligence and care. Walt Disney. For high school, college, and adults. (Accident Prevention.)

NON-VERBAL COMMUNICATION (Psychotherapeutic Interviewing Series. Part 4) 27 minutes. 1952

Discusses the recognition of the clues of non-verbal communication and the manner in which these clues can be used in an interview situation to obtain information and to further therapy. Illustrates the various points through pictures, with subtitles, of actual unrehearsed interview situations. U. S. Veterans Administration. For professional personnel. (Mental Health; Psychotherapy; Interviewing; Psychotherapeutic.)

ORGANIZED MOSQUITO CONTROL Color. 16 minutes. 1955

Shows a sampling to determine the species of mosquitoes present, their relative abundance,

and types of breeding places; dipping for larvae to determine major problem areas; breeding sites as determinants of flight ranges; three common methods of mosquito abatement—permanent control through water management, larviciding, and killing adults on the wing or in resting places; and five major problem areas—fresh water swamps and depressions, salt marshes, lakes and farm ponds, irrigated fields and pastures, and urban areas. Emphasizes the importance of an organized mosquito control program. Communicable Disease Center, U. S. Public Health Service. For sanitarians, vector control personnel and interested community groups. (Sanitation, Insect Control.)

PLANT HEALTH PROGRAM, A Filmstrip.

Sound. 14 minutes. 1955

It tells the story behind employee health services. By taking you to a printing plant in Louisville, Kentucky, to watch an employee health program in operation, it helps to answer such questions as: Why are employee health programs being established? What services do they provide? What do they accomplish? U. S. Public Health Service. For management, labor and the health professions. (Occupational Health.)

POLIO AND THE VACCINE Filmstrip. Color. 44 frames. 1955

Depicts normal nerve cells and those attacked by the poliomyelitis virus; explains immunity conferred by the Salk vaccine; shows care and rehabilitation of actual patients. National Foundation for Infantile Paralysis. For high school classroom use, preferably after the Source Book No. 11 has been read and discussed. Also suitable for adult groups. Guide accompanies the filmstrip. (Poliomyelitis; Immunization.)

SCARE STORY Color. 16 minutes. 1955

Two sections on one reel.

"Scare Story"—3 minutes.

"A True Story About Hospitals"—13 minutes.

Scare Story, the prologue, is designed to be shown to hospital personnel only. It dramatizes the fears a child might have if not properly prepared for hospital admission.

A True Story About Hospitals follows a little boy and a little girl from the time they first meet the admitting clerk through their entire hospitalization. By the time they are ready to go home, they have witnessed almost all the ordinary hospital procedures. Children's Hospital in Los Angeles. Restricted until further notice to inservice education uses in hospitals. (Hospitals; Community Health Services.)

SCIENCE WRITERS GET THE FACTS ON FLUORIDATION 14½ minutes. 1956

Provides a simple, understandable synopsis of the current status of water fluoridation. This is actually a film record of a scientific press conference. The questions cover the basic facts on fluoridation, and fallacies and rumors regarding its safety are countered by experts. Committee to Protect Our Children's Teeth. For professional and community groups. (Dental Health; Fluoridation.)

SERVING FOOD Color. 11 minutes. 1954

Portrays the hiring of a waitress and shows the orientation and induction training

given to her by a restaurant hostess, including instruction in the proper storage of cups, dishes, and glasses; cleanliness; correct ways of clearing tables; protecting the waitress' health; safeguarding against disease; and the development of satisfactory personal habits by food service personnel. Communicable Disease Center, U. S. Public Health Service. (Sanitation, Food.)

STUDY OF HEALTH EXHIBITS—APHA, A Filmstrip. Color. 30 frames. 1957

Shows exhibits photographed at the annual meetings of the American Public Health Association held in New York and Buffalo in 1953 and 1954. Gives a sampling of scientific exhibits both outstanding and ordinary. (Professional Training.)

SUCCESSFUL EXHIBIT IDEAS Filmstrip. 80 frames. 1957

Composed of exhibit photographs from more than 60 national, state and local organizations in the United States and Canada. Emphasis is on exhibit ideas that are not expensive to carry out. Each frame highlights one aspect of exhibits, e.g., background, captions. National Publicity Council. For health educators and health department personnel. (Professional Training.)

WE WHO WORK IN HOSPITALS Filmstrip.

Sound. 15 minutes. 1954

The film portrays safety hints for all hospital personnel. Liberty Mutual Insurance Company. (Accident Prevention; Hospitals.)

Medical Students Employed In Department

Fourteen medical students from 11 medical schools are employed by the department this summer in programs of particular interest to them and where there is opportunity for substantial training as well as work experience.

The Schools of Medicine of Stanford University, Harvard University and the University of Pennsylvania are each represented by two students; the University of California, George Washington University, Cornell University, Howard University, Western Reserve, Columbia University and University of Kansas Medical Schools and New York State Medical College are each represented by one student.

Several formal seminars are scheduled for these students during the months of July and August; the remainder of the time they will be in various program units participating as members of the staff.

Two students are working on alcoholism studies, two on air pollution, two on heart disease, one on child health supervision, five on neurotropic virus disease and one on industrial health and radiation.

Stabilized Emulsion Developed For V. D. R. L. Test

The Venereal Disease Research Laboratory, U. S. P. H. S., at Chamblee, Georgia, has perfected a stabilized antigen emulsion for use in the V. D. R. L. test (slide, tube, and spinal fluid) employed in serologic diagnosis of syphilis. This stabilized antigen is now being used for routine testing in that laboratory. In their hands, comparative tests performed with freshly prepared antigen emulsion and with stabilized emulsion prepared two weeks previously were identical.

A paper describing this work with stabilized V. D. R. L. antigen emulsion, which was done under the direction of H. N. Bossak, has been submitted for publication in *Public Health Reports*. It is planned to include this emulsion as an alternate method in the next revision of the Manual of Serologic Tests for Syphilis, according to information received recently from the Venereal Disease Research Laboratory.

Before submitting the data for publication, Ad Harris, Director of the V. D. R. Laboratory, informed a few state health departments of the method and requested that it be put into operation in their laboratories for one month, to subject it to unbiased checking before final release. The California State Health Department Bacteriology Laboratory tested a series of blood specimens in duplicate by V. D. R. L. slide technic employing freshly prepared antigen emulsion and the new stabilized emulsion. A total of 1,102 specimens were tested on a qualitative basis and 141 on a quantitative basis. Satisfactory comparability was demonstrated using the two types of emulsion.

It is believed that the perfection of a stabilized antigen greatly enhances the usefulness of the V. D. R. L. tests. Formerly each lot of antigen emulsion was usable only through one working day. This made it necessary for small laboratories, performing relatively few serologic tests for syphilis, to make sufficient antigen emulsion for 200 slide tests and discard a large part of it. Since stabilized emulsion is usable in tests for several weeks, it should prove to be not only an economy in time and materials but also of assistance in obtaining standardized reproducible results.

Reported Cases of Selected Notifiable Diseases—California, Month of June, 1958

Disease	Cases reported this month			Total cases reported to date		
	1958	1957	1956	1958	1957	1956
Amebiasis	77	104	128	759	920	437
Anthrax	—	—	—	—	—	—
Botulism	1	—	—	1	—	—
Brucellosis	3	15	3	17	27	16
Chancroid	3	5	9	40	36	44
Cholera	—	—	—	—	—	—
Coccidioidomycosis	25	13	11	106	103	78
Conjunctivitis, acute infectious of the newborn	2	—	—	11	2	5
Dengue	—	—	—	—	—	—
Diarrhea of the newborn	—	3	2	16	15	5
Diphtheria	—	—	8	5	4	23
Encephalitis, acute	48	52	58	230	253	288
Epilepsy	337	285	246	2,138	1,799	1,737
Food poisoning	65	367	56	453	654	669
Gonococcal infections	1,398	1,144	1,151	8,334	7,961	7,281
Granuloma inguinale	1	—	—	5	3	1
Hepatitis, infectious	162	197	130	1,033	1,036	1,002
Hepatitis, serum	10	9	7	54	52	49
Leprosy	1	1	—	8	10	3
Leptospirosis	—	—	1	2	—	3
Lymphogranuloma venereum	2	3	5	19	14	17
Malaria	1	2	5	8	11	15
Measles	5,762	5,029	5,170	30,139	49,696	27,053
Meningococcal infections	12	8	18	103	97	155
Mumps	1,657	1,921	3,173	12,927	14,486	27,554
Pertussis (whooping cough)	390	228	204	1,931	889	1,163
Plague	—	—	1	—	—	1
Polio myelitis—						
Total	25	46	162	89	215	685
Paralytic	15	15	109	52	103	471
Nonparalytic	10	31	53	37	112	214
Psittacosis	1	2	4	13	18	18
Q fever	9	10	12	16	26	32
Rabies, animal	24	21	31	103	88	199
Rabies, human	—	—	—	—	1	—
Relapsing fever	—	—	—	—	—	—
Rheumatic fever	12	9	10	78	79	86
Rocky Mt. spotted fever	—	—	—	—	—	1
Salmonellosis	74	79	111	403	465	626
Shigellosis	126	186	135	527	709	831
Smallpox	—	—	—	—	—	—
Streptococcal infections (including scarlet fever)	1,331	574	368	7,554	5,649	3,495
Syphilis	442 ^a	560	452	3,190 ^b	3,094	3,122
Tetanus	6	1	1	19	12	14
Trachoma	1	—	—	2	80	3
Trichinosis	1	1	2	2	2	7
Tuberculosis	456	500	—	3,337	3,499	—
Tularemia	—	—	2	2	1	3
Typhoid fever	5	5	4	29	27	44
Typhus fever, endemic	—	—	—	1	1	2
Typhus fever, epidemic	—	—	—	—	—	—
Yellow fever	—	—	—	—	—	—

^a Excludes 460 cases found positive by special serologic survey (Mexican National farm workers at Border Reception Center, El Centro).

^b Excludes 3,416 cases found positive by special serologic survey (Mexican National farm workers at Border Reception Center, El Centro).

^c 1956 data not comparable.

The control of viral hepatitis in both military and civilian populations presents one of the foremost problems in preventive medicine.—Ward et al., *New England Journal of Medicine*, March 27, 1958.

Survey Shows Average of Five Visits a Year to Physician

Americans visit their physicians at the rate of almost five times a year (4.8) and their dentists less than twice a year (1.6), according to reports from the National Health Survey. The reports are based on nationwide household interviews conducted during July, August and September of 1957.

Findings of the California Health Survey concerning physician visits are substantially in agreement with the results obtained by the national survey. (No questions pertaining to frequency of dental visits were asked during the California study.) The minor differences in results between the two surveys are probably due to seasonal variations. The California study was conducted by this department during the months of February, March and April, 1955.

Other findings in the national study follow:

Medical Care

1. Only about 10 percent of the physician visits were in the home; most of the rest were in the doctor's office.

2. Farm families used physicians at a lower rate than did other groups of the population—3.6 visits per year compared with 4.5 for rural nonfarm population and 5.1 for the urban population.

3. Two-thirds of all visits involved diagnosis and treatment; only one-third involved preventive care or other services. This is the only point

on which the California survey differed to any extent. The California study showed that only 10 percent of the physician visits were for preventive care; however, seasonal variation could account for the lower figure since during the winter months people are more likely to seek treatment for colds and the like than during the summer months. Conversely, during the summer months people are more apt to visit their physician for routine check-ups before vacations and the school year begins.

4. Indications were that 18 percent of all people had consulted a physician during the month preceding the interview.

Dental Care

1. Persons living in urban areas visited their dentists at a rate of 1.9 visits per year, as compared with 1.2 visits per year for persons living in rural areas.

2. About 70 percent of the dental visits were for treatment (41 percent for fillings, 20 percent for extractions, 8 percent for denture work, 1 percent for gum treatment), while approximately 19 percent were for preventive work (10 percent for cleaning, 6 percent for examination, 3 percent for straightening).

Most of the Nation's children are in a relatively small proportion of its families. Families with three or more children constitute only 18 percent of all families, but they have 54 percent of the Country's children.—*Children and Youth*, Children's Bureau Publication No. 363.

3. Thirty-six percent of the population had visited their dentists at least once within the preceding year. However, 42 percent had not been to a dentist in three or more years.

4. Almost 22 million (21.6) persons have lost all their teeth. This represents 13 percent of the population.

Survey information is obtained from household interviews in a continuous probability sampling of the population. Interviews were conducted in about 9,000 homes, comprising 28,500 persons.

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